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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/072,113	02/08/2002	Maurice G. Gauchet	FR010012	2545

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PHILIPS INTELLECTUAL PROPERTY & STANDARDS
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EXAMINER

NGUYEN, BINH AN DUC

ART UNIT	PAPER NUMBER
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3713

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DATE MAILED: 03/30/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/072,113

Applicant(s)

MAURICE GAUCHET

Examiner

Binh-An D. Nguyen

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 08 February 2002.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-11 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-11 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 08 February 2002 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>4.5</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 1-11 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 1 is vague and indefinite since it is unclear where the preamble starts and ended. The claim is generally narrative and indefinite, failing to conform with current U.S. practice. It appear to be a literal translation into English from a foreign document and are replete with grammatical and idiomatic errors. Further, each of the method steps has not been clearly recited. Note that, the claim should be recited as: "A method of manufacturing an ultrasound transducer comprising the steps of: cutting at least one slit on a plate, wherein the plate has a shape of a disc formed of a composite piezoelectric material, and wherein the at least one slit has a radial orientation and extends from the peripheral edge of the disc toward its center; forming the plate into a hollow spherical cap; and facing two opposite edges of the at least one slit substantially in contact with one another so as to minimize the internal stresses of the cap."

In claim 9, the recited term "the adhesive" (line 2) lacks antecedent basis. Note, it appears that claim 9 should be dependent on claim 8.

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Claim 11 is vague and indefinite because it claims an ultrasound transducer which depends on the method of claim 1. It appears that the applicant intended to claim a product by process. It is suggested that claim 11 be independently claimed.

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 1-7, 10 and 11, as best understood, are rejected under 35 U.S.C. 103(a) as being unpatentable over Lockwood et al. (5,412,854) in view of Kensaku et al. (Japanese Publication 05-276594).

Lockwood et al. teaches a method of making a transducer comprising forming the plate (wafer 12) of composite piezoelectric material into a hollow spherical cap having spherically shaped surface (figures 1-3; 3:1-40); during the step of forming, the composite piezoelectric material is heated so as to soften it, thereafter it is cooled (see the abstract). Lockwood et al. does not explicitly teach cutting at least one slit on the plate, wherein the plate has a shape of a disc, and wherein the at least one slit has a radial orientation and extends from the peripheral edge of the disc toward its center (claim 1); at least one slit extends radially partly along a radius of the disc (claim 2); a series of slits which are angularly distributed in a regular fashion so as to define substantially identical angular sectors (claim 7). Kensaku et al., however, teaches a

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method of making an ultrasonic wave transmitter-receiver comprising: cutting at least one slit on a plate (14), wherein the plate has a shape of a disc formed of a composite piezoelectric material, and wherein the at least one slit has a radial orientation and extends from the peripheral edge of the disc toward its center; and at least one slit extends radially partly along a radius of the disc; a series of slits which are angularly distributed in a regular fashion so as to define substantially identical angular sectors (figure 2).

Regarding the limitations of at least one slit extends radially as far as the center of the disc (claim 3); at least two slits extend radially as far as the center of the disc in such a manner that the disc is separated into at least two distinct portions (claim 4); the facing, oppositely situated free edges have a radial orientation in such a manner that the corresponding slit forms a V whose apex is oriented towards the center of the disc (claim 5); the oppositely situated free edges are curved and convex, their convexity being opposed (claim 6), it would have been obvious to a person of ordinary skill in the art to use different cutting shapes and patterns to slit the piezoelectric plate to reduce its resonance frequency thus reducing stress of the transducer.

It would have been obvious to a person of ordinary skill in the art at the time of the invention to provide the multiple slitting method of the piezoelectric disc of Kensaku et al. to Lockwood et al.'s method of making a transducer to minimize the internal stresses of the spherical transducer thus increase the durability of the transducer and increase sales.

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6. Claims 8 and 9, as best understood, are rejected under 35 U.S.C. 103(a) as being unpatentable over Lockwood et al. (5,412,854) in view of Kensaku et al. (Japanese Publication 05-276594), as applied to claims 1-7, 10 and 11 above, and further in view of Chan et al. (6,190,497).

Lockwood et al. and Kensaku et al. teach all limitations of claims 1-7, 10 and 11 above except the limitations of gluing together the edges of the slits (claim 8); and the adhesive is an electrically insulating adhesive. Chan et al., however, teaches joining piezoelectric wafer sectors (18, 19) using an electrically insulating material, i.e., polymer, (figures 4-6; 1:12-18 and 2:44-67). It would have been obvious to a person of ordinary skill in the art at the time of the invention to provide of Chan et al.'s method of joining piezoelectric sectors using polymer to the transducer, as taught by Lockwood et al. and Kensaku et al., to provide insulation to desired sectors of the transducer to suppress vibrations in unwanted modes of vibration thus minimize internal stress.

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Binh-An D. Nguyen whose telephone number is 703-305-5713. The examiner can normally be reached on Monday-Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Teresa Walberg can be reached on 703-308-1327. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

BN


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